

INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB2004/002329

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 E21B43/12 E21B34/04 E21B34/02 E21B33/06

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 E21B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 874 008 A (LAWSON JOHN E) 17 October 1989 (1989-10-17) column 2, line 61 - column 3, line 31; figures 2,3	1,3,4, 15,16, 31-36
Y	the whole document	10-14, 17-24, 37-52
A		2,5-9, 25-30
Y	WO 02/38912 A (DONALD IAN) 16 May 2002 (2002-05-16) page 1, line 4 - page 5, line 27; figures 1,2a	10-14, 17-24, 37-52
A	page 15, line 8 - page 16, line 6	5-9, 25-30
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☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

° Special categories of cited documents:

A document defining the general state of the art which is not considered to be of particular relevance

E earlier document but published on or after the international filing date

L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

O document referring to an oral disclosure, use, exhibition or other means

P document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

& document member of the same patent family

Date of the actual completion of the international search

14 September 2004

Date of mailing of the international search report

22/09/2004

Name and mailing address of the ISA

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 3 608 631 A (SIZER PHILLIP S ET AL) 28 September 1971 (1971-09-28) column 1, line 9 - column 3, line 32; figure 1 -----	1-52
A	US 3 593 808 A (NELSON ARTHUR J) 20 July 1971 (1971-07-20) column 12, line 10 - column 12, line 39; figure 1 -----	1-52
A	WO 02/088519 A (SMITH RONALD GEOFFREY WILLIAM ; ALPHA THAMES LTD (GB); APPLEFORD DAVID) 7 November 2002 (2002-11-07) page 1, paragraph 1 - page 8, paragraph 3 -----	1-52
A	WO 96/30625 A (BAKER HUGHES INC) 3 October 1996 (1996-10-03) page 1, line 5 - page 7, line 10 -----	1-52

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Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☒ Claims Nos.: 53-130
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box II.2

Claims Nos.: 53-130

In view of the large number and also the wording of the claims presently on file, which render it difficult, if not impossible, to determine the matter for which protection is sought, the present application fails to comply with the clarity and conciseness requirements of Article 6 PCT (see also Rule 6.1(a) PCT) to such an extent that a meaningful search is impossible. Consequently, the search has been carried out for those parts of the application which do appear to be clear (and concise), namely claims 1 to 52 (relating to the first apparatus and first method claims)

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.5), should the problems which led to the Article 17(2) declaration be overcome.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB2004/002329

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 4874008	A	17-10-1989	NONE	
WO 0238912	A	16-05-2002	AU 1252502 A BR 0115157 A CA 2428165 A1 EP 1332274 A1 WO 0238912 A1 NO 20032037 A US 2004026084 A1	21-05-2002 17-08-2004 16-05-2002 06-08-2003 16-05-2002 02-07-2003 12-02-2004
US 3608631	A	28-09-1971	NONE	
US 3593808	A	20-07-1971	US 3760889 A	25-09-1973
WO 02088519	A	07-11-2002	BR 0209335 A EP 1383985 A1 WO 02088519 A1 NO 20034764 A US 2004144543 A1	15-06-2004 28-01-2004 07-11-2002 22-12-2003 29-07-2004
WO 9630625	A	03-10-1996	AU 5526496 A CA 2216430 A1 EP 0815349 A1 GB 2314572 A , B GB 2327695 A , B GB 2332463 A , B GB 2332464 A , B GB 2332465 A , B NO 974471 A WO 9630625 A1 US 5762149 A US 5868210 A	16-10-1996 03-10-1996 07-01-1998 07-01-1998 03-02-1999 23-06-1999 23-06-1999 23-06-1999 26-11-1997 03-10-1996 09-06-1998 09-02-1999

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

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20 SEP 2004

PCT WPO PCT

To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/GB2004/002329

International filing date (day/month/year)
01.06.2004

Priority date (day/month/year)
31.05.2003

International Patent Classification (IPC) or both national classification and IPC
E21B43/12, E21B34/04, E21B34/02, E21B33/06

Applicant
DES ENHANCED RECOVERY LIMITED

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☒ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
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Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
☐ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material:
☐ in written format
☐ in computer readable form
 - c. time of filing/furnishing:
☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

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Box No. II Priority

1. ☒ The following document has not been furnished:

- ☒ copy of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(a)).
- ☐ translation of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

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Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application,

☒ claims Nos. 53-130

because:

☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (*specify*):

☐ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):

☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

☒ no international search report has been established for the whole application or for said claims Nos. 53-130

☐ the nucleotide and/or amino acid sequence listing does not comply with the standard provided for in Annex C of the Administrative Instructions in that:

the written form

☐ has not been furnished

☐ does not comply with the standard

the computer readable form

☐ has not been furnished

☐ does not comply with the standard

☐ the tables related to the nucleotide and/or amino acid sequence listing, if in computer readable form only, do not comply with the technical requirements provided for in Annex C-*bis* of the Administrative Instructions.

☒ See separate sheet for further details

**WRITTEN OPINION OF THE
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Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	2,5-14,17-30,37-52
	No: Claims	1,3,4,15,16,31-36
Inventive step (IS)	Yes: Claims	2,5-9,25-30
	No: Claims	10-14,17-24,31-36,37-52
Industrial applicability (IA)	Yes: Claims	1-52
	No: Claims	

2. Citations and explanations

see separate sheet

III Non-establishment of Opinion

The present application contains 130 claims, of which 19 are independent. There is no clear distinction between the independent claims because of overlapping scope. There are so many claims, and they are drafted in such a way that the claims as a whole are not in compliance with the provisions of clarity and conciseness (Article 6 PCT), as it is particularly burdensome for a skilled person to establish the subject-matter for which protection is sought. The non-compliance with the substantive provisions is to such an extent that a meaningful search of the whole claimed subject-matter could not be carried out (Article 17(2) PCT and PCT Guidelines 9.30).

However, in order that the applicant gains a reasonable idea of the background art available, the subject-matter of claims 1 to 52 (relating to two apparatus and one method claim) has been searched, and according to the provisions of the PCT, these searched claims will be the subject of a detailed examination.

V Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

V-1 Claims 1 to 14

The document **D1: US-A-4 874 008** discloses (see in particular figures 2 and 3 and columns 2 and 3) a diverter assembly (62) [for a manifold of a an oil or gas well] comprising:

a housing (42) having an internal passage (58,60), whereby the diverter assembly is adapted to connect to a branch of a manifold (48,50).

Therefore the subject-matter of **claim 1** is not new in the sense of Article 33(2) PCT.

Although **D1** as well as **D2: WO 02/38912** and **D3: US-A-3 593 808** disclose diverter systems that can be attached to the main production bore of the manifold, there is no hint in any of these documents that the diverter is adapted to be located in a wing branch bore. Therefore the subject-matter of **claim 2** is new and inventive with respect to the corresponding requirements of the PCT.

However, as the subject-matter of **claims 3 and 4** is disclosed in **D1**, said claims are also not new.

Although **D2** discloses the use of an insert in the main production bore of a well, none of the available prior art appears to disclose the subject-matter of **claims 5 to 9** whereby an axial insert (for a wing branch bore) is provided and therefore said claims meet the requirements of the PCT with respect to novelty and inventive step.

D2 discloses the subject-matter of **claims 10 to 14** and said claims do not meet the requirements of the PCT with respect to inventive step.

V-2 Claims 15 to 30

D1 is also considered to be the closest prior art to the subject-matter of **claim 15** (see the argument given above for claim 1) and therefore said claim is not new.

The diverter system in **D1** also discloses the subject-matter of **claim 16**, and in combination with **D2**, the subject-matter of **claims 17 to 24**. Therefore said claims are not new and/or inventive. However, the subject-matter of **claims 25 to 30** is not hinted at in any of the documents of the prior art and therefore the subject-matter of said claims meets the requirements of the PCT with respect to novelty and inventive step.

V-3 Claims 31 to 52

D1 is also considered the closest prior art to the subject-matter of method **claim 31**, and although said document discloses a method of diverting fluids whereby a diverter assembly is connected to a branch of a manifold, it is unclear, in the light of the preceding apparatus claims whether this is a manifold branch as shown by the manifold assembly of **D1**, figure 2 (valve modules 12) or the wing branch bore of claim 2 of the current application. It is possible to see from Figure 2 of **D1** that the diverter assembly comprises a housing (42) having an internal passage (58,60), whereby the fluids are diverted through the housing, but not whereby the diverter assembly is adapted to be located within a bore in a wing branch. This lack of clarity notwithstanding, and assuming the former interpretation of the claim, the subject-matter of **claim 31** is therefore not new and does not meet the corresponding requirements of the PCT with respect to novelty.

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.

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The subject-matter of **claims 32 to 36** is disclosed by **D1** and said claims also do not meet the requirements of the PCT with respect to novelty.

In addition, the subject-matter of **claims 37 to 52** is anticipated entirely by the disclosure made in **D2**.